INSTRUCTIONS FOR ALIGNING, FOCUSING AND MAINTAINING GRS 8" LEX-C® HIGHWAY CROSSING SIGNAL LIGHT UNITS

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INTRODUCTION

The lamp receptacle in a GRS LEX-C crossing signal light unit, Figure 1, is carefully positioned at the factory to precisely locate the lamp filament on the optical centerline at the reflector's focal point, thus producing maximum brilliance. Use GRS precision filament lamps only. If it becomes absolutely necessary to reposition the lamp receptacle, carefully follow the instructions under "Focusing" on the other side of this sheet.

CAUTION

The deep-dish parabolic reflector in the LEX-C unit is so efficient in gathering and reflecting light from the lamp filament that the beam may cause eye damage when viewed without the red lens in place. To avoid possible eye damage, either use protective eyewear, reduce the lamp voltage, or substitute a lower wattage lamp just for the alignment procedure.

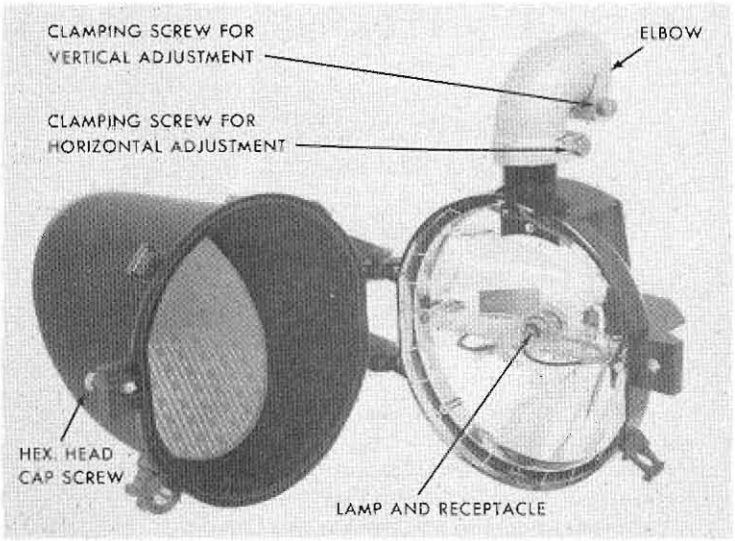


Figure 1. LEX-C crossing signal unit.

INSTALLATION NOTE

Be sure to loosen the horizontal adjusting clamping screw before inserting a LEX-C unit in an elbow. Use care to avoid cross threading, which will damage the threads. To minimize the possibility of cross threading, position the LEX-C unit upside down on its mounting elbow. The weight of the unit will help align the unit and elbow threads.

ALIGNMENT PROCEDURE

Arrange for a watchman to hand flag the crossing during the following procedures.

Front Light Units

The procedure for alignment of front lights is the same for mast mounted or cantilever mounted units.

1. Apply energy to the front light unit to be aligned. The front light units face oncoming vehicular traffic in the right-hand lane.
2. Unscrew the hex-head cap screw, Figure 1, and open the door as far as possible so a clear beam is displayed.
3. Loosen the clamping screw at the bottom of the elbow.
4. Locate a man (observer) 400 feet in approach to the signal and in the center of the right-hand highway lane.
5. Swing the light unit back and forth in the horizontal plane several times so that the observer can recognize the difference between the edge of the beam and the bright portion.
6. Swing the light unit horizontally until it is at the exact point where the observer just ceases to see the beam. Make a vertical pencil mark across the edge of the elbow and onto the pipe nipple which is part of the light unit case. Next, swing the light unit horizontally in the opposite direction until the observer just ceases to see the beam. Make a vertical pencil mark on the edge of the elbow opposite the mark on the nipple. Divide the distance between the two vertical marks on the elbow in half and make a vertical pencil mark at this point. Swing the light unit back so the vertical mark on the nipple and the half-way mark on the elbow are lined up. Tighten the clamping screw.
7. Loosen the clamping screw at the top of the elbow.
8. Adjust light unit vertically to align the centerline of the beam 5 feet 6 inches above the pavement at 400 feet in approach to the signal as outlined below. (This will place the hot-spot of the beam above the eye-level of automobile drivers but not above the eye-level of truck and bus drivers.) Swing the light unit down in a vertical plane until the light unit is at the exact point where the observer just ceases to see the beam. Make a horizontal pencil mark across the edge of the elbow and the arm. Next, swing the light unit up in a vertical plane until the observer just ceases to see the beam. Make a horizontal pencil mark on the arm opposite the mark on the elbow. Divide the distance between the two horizontal marks on the arm in half and make a horizontal pencil mark at this point. Swing the light unit back so the horizontal mark on the elbow and the half-way mark on the arm are lined up. Tighten the clamping screw at the top of the elbow.
9. Close and fasten the door with the hex-head cap screw.
10. Repeat the procedure outlined in steps 1 through 9 on other front light units.

Back Light Units

All back light units are aligned exactly the same as the front light units except that the man observing the light beam should move from his 400 foot station up the same line to a station 24 feet (12 feet for cantilever mounted units) in approach to the near signal on which front light alignment has just been completed.

Final Check

With the lights flashing and the lamps burning at recommended voltage, check that maximum visibility is obtained at 400 feet and adequate visibility at 1500 feet for the front light units, and that maximum visibility is obtained at 24 feet and adequate visibility at 200 feet for the back light units.

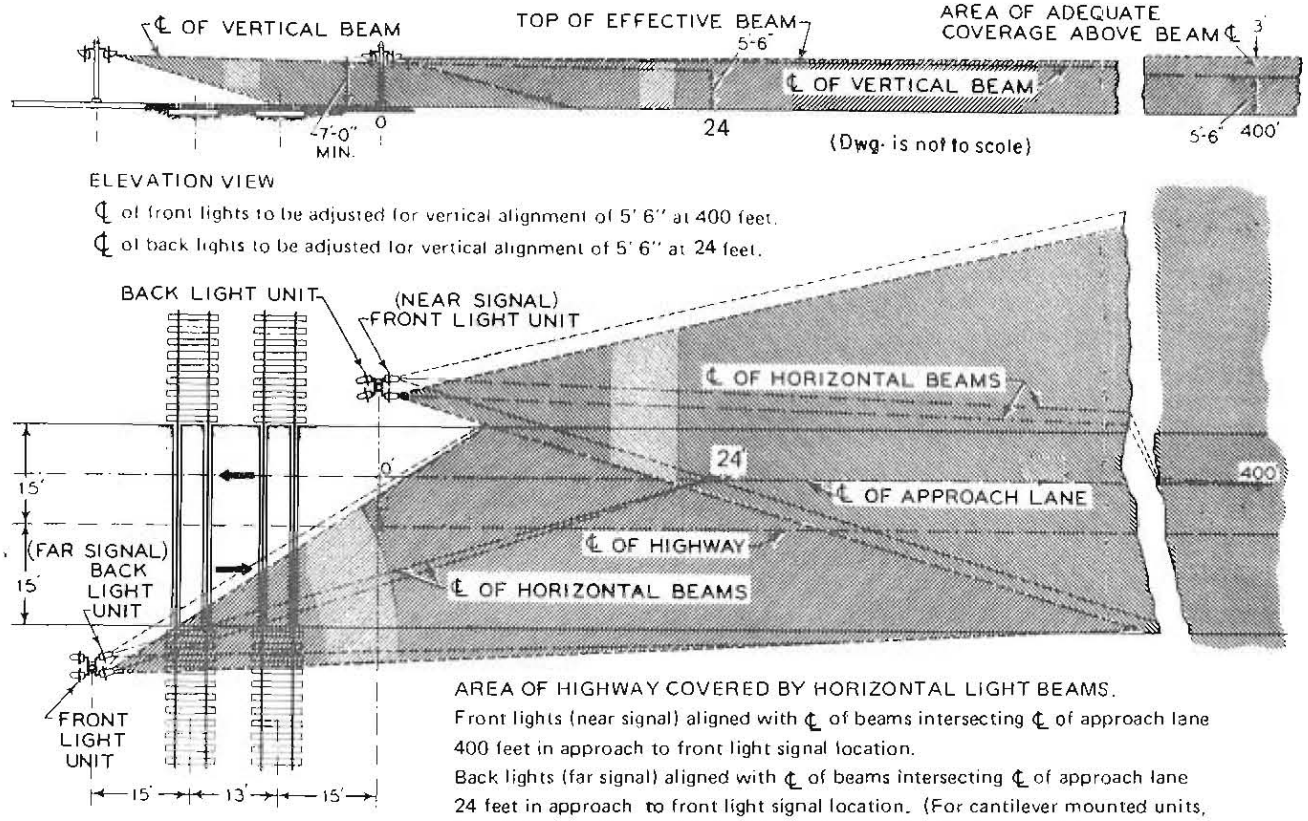
MAINTENANCE

Clean the inside and outside surfaces of a LEX-C flashing light unit by applying one of the three cleaners listed from a pump spray container or by saturating a chamois.

1. BRILLIANIZE, made by Chemical Products Co., Omaha, NB, 68102.
2. Any plastic cleaner and polish recommended for use on polycarbonate.
3. A 2% solution of a mild dishwashing detergent. Rinse with clean water and dry immediately with a chamois.

CAUTION:

Do not use a dry chamois on a dry surface. Do not use ammonia or cleaners containing ammonia. Do use particular care to avoid scratching the surface of the reflector.



AREA OF HIGHWAY COVERED BY HORIZONTAL LIGHT BEAMS.

Front lights (near signal) aligned with ℄ of beams intersecting ℄ of approach lane 400 feet in approach to front light signal location.

Back lights (far signal) aligned with ℄ of beams intersecting ℄ of approach lane 24 feet in approach to front light signal location. (For cantilever mounted units, back lights are aligned with ℄ of beams intersecting ℄ of approach lane 12 feet in approach to front light signal location.)

Figure 2. Correct alignment for signal units.

FOCUSING

1. Attach the LEX-C unit to a suitable bracket that provides access to the two screws securing the lamp receptacle support arm to the case. Open the LEX-C cover.
2. Set up a white screen sighting board 25 feet in front of the LEX-C. Apply a mark to the screen which corresponds with the height of the lamp filament in the signal unit.
3. Insert a GRS precision filament lamp in the lamp receptacle and energize the lamp.
4. To achieve the smallest possible light pattern on the screen, loosen the front plastic nut (nearest the lamp filament) on the lamp receptacle support and tighten the back plastic nut to move the filament away from the center of the reflector, OR, tighten the front nut and loosen the back nut to move the filament toward the center of the reflector. After this adjustment, tighten the nuts—be careful not to strip the threads.

   To check the vertical position of the filament, loosen the screw at one end of the lamp support arm where it is attached to the reflector case, and raise and lower the arm to center the light pattern on the mark on the screen. Tighten the screw and repeat the procedure at the other end of the arm.
5. Recheck the focus after the nuts and screws have been tightened.

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